



240

SEQUENCE LISTING

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<120> IMPROVED NUCLEIC ACIDS ENCODING A CHIMERIC
GLYCOSYLTRANSFERASE

<130> 30562.6USWO

<140> 09/051,034

<141> 1998-03-31

<150> PCT/AU97/00492

<151> 1997-08-01

<150> 60/024,279

<151> 1996-08-21

<150> PO1402

<151> 1996-08-02

<160> 16

<170> PatentIn Ver. 2.1

<210> 1

<211> 1043

<212> DNA

<213> Sus Domesticus

<220>

<221> CDS

<222> (9)..(1031)

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Met Leu Ser Met Gln Ala Ser Phe Phe Phe Pro Thr Gly Pro
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ttc atc ctc ttt gtc ttc acg gct tcc acc ata ttt cac ctt cag cag 98
Phe Ile Leu Phe Val Phe Thr Ala Ser Thr Ile Phe His Leu Gln Gln
15 20 25 30

agg atg gtg aag att caa ccc acg tgg gag tta cag atg gtg acg cag 146
Arg Met Val Lys Ile Gln Pro Thr Trp Glu Leu Gln Met Val Thr Gln
35 40 45

I

gtg acc aca gag agc ccc tcg agc ccc cag ctg aag ggc atg tgg acg	194
Val Thr Thr Glu Ser Pro Ser Ser Pro Gln Leu Lys Gly Met Trp Thr	
50 55 60	
atc aat gcc atc ggc cgc ctg ggg aac cag atg ggg gag tac gcc acc	242
Ile Asn Ala Ile Gly Arg Leu Gly Asn Gln Met Gly Glu Tyr Ala Thr	
65 70 75	
ctg tac gcg ctg gcc agg atg aac ggg cgg ccg gcc ttc atc ccg ccc	290
Leu Tyr Ala Leu Ala Arg Met Asn Gly Arg Pro Ala Phe Ile Pro Pro	
80 85 90	
gag atg cac agc acg ctg gcc ccc atc ttc agg atc acc ctc ccg gtc	338
Glu Met His Ser Thr Leu Ala Pro Ile Phe Arg Ile Thr Leu Pro Val	
95 100 105 110	
ctg cac gcc agc acg gcc cgc agg atc ccc tgg cag aac tac cac ctg	386
Leu His Ala Ser Thr Ala Arg Arg Ile Pro Trp Gln Asn Tyr His Leu	
115 120 125	
aac gac tgg atg gag gag cgg tac cgc cac atc ccg ggg gag tac gtg	434
Asn Asp Trp Met Glu Glu Arg Tyr Arg His Ile Pro Gly Glu Tyr Val	
130 135 140	
cgc ctc acg ggc tac ccc tgc tcc tgg acc ttc tac cac cac ctg cgc	482
Arg Leu Thr Gly Tyr Pro Cys Ser Trp Thr Phe Tyr His His Leu Arg	
145 150 155	
acc gag atc ctc cgg gag ttc acc ctg cat aac cac gtg cgc gag gag	530
Thr Glu Ile Leu Arg Glu Phe Thr Leu His Asn His Val Arg Glu Glu	
160 165 170	
gcc cag gat ttc ctg cgg ggt ctg cgg gtg aac ggg agc cga ccg agt	578
Ala Gln Asp Phe Leu Arg Gly Leu Arg Val Asn Gly Ser Arg Pro Ser	
175 180 185 190	
acc tac gtg ggg gtg cac gtg cgc cgg ggg gac tac gtg cac gtg atg	626
Thr Tyr Val Gly Val His Val Arg Arg Gly Asp Tyr Val His Val Met	
195 200 205	
ccc aac gtg tgg aag ggc gtg gtg gcc gac cgg cgg tac ctg gag cag	674
Pro Asn Val Trp Lys Gly Val Val Ala Asp Arg Arg Tyr Leu Glu Gln	
210 215 220	
gcc ctg gac tgg ttc cgg gct cgc tac cgc tcc ccc gtc ttt gtg gtc	722
Ala Leu Asp Trp Phe Arg Ala Arg Tyr Arg Ser Pro Val Phe Val Val	
225 230 235	

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tcc agc aac ggc atg gcc tgg tgt cgg gaa aac atc aat gcc tcg cgc	770
Ser Ser Asn Gly Met Ala Trp Cys Arg Glu Asn Ile Asn Ala Ser Arg	
240 245 250	
ggc gat gtg gtg ttt gcc ggc aat ggc atc gag ggc tcc ccc gcc aaa	818
Gly Asp Val Val Phe Ala Gly Asn Gly Ile Glu Gly Ser Pro Ala Lys	
255 260 265 270	
gac ttc gcg ctg ctc acg cag tgt aac cac act gtc atg acc att ggc	866
Asp Phe Ala Leu Leu Thr Gln Cys Asn His Thr Val Met Thr Ile Gly	
275 280 285	
acg ttc ggg atc tgg gcc gcc tac ctt gct ggt gga gag acc atc tac	914
Thr Phe Gly Ile Trp Ala Ala Tyr Leu Ala Gly Gly Glu Thr Ile Tyr	
290 295 300	
ctg gcc aat tac acg ctc ccg gac tct ccc ttc ctc aaa ctc ttt aag	962
Leu Ala Asn Tyr Thr Leu Pro Asp Ser Pro Phe Leu Lys Leu Phe Lys	
305 310 315	
ccc gag gca gcc ttc ctg ccc gag tgg att ggg atc gag gca gac ctg	1010
Pro Glu Ala Ala Phe Leu Pro Glu Trp Ile Gly Ile Glu Ala Asp Leu	
320 325 330	
tcc cca ctc ctt aag cac tga tgatcggtgt cc	1043
Ser Pro Leu Leu Lys His	
335 340	

<210> 2
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 <212> PRT
 <213> Sus Domesticus

<400> 2															
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Leu	Phe	Val	Phe	Thr	Ala	Ser	Thr	Ile	Phe	His	Leu	Gln	Gln	Arg	Met
			20					25					30		
Val	Lys	Ile	Gln	Pro	Thr	Trp	Glu	Leu	Gln	Met	Val	Thr	Gln	Val	Thr
		35					40					45			
Thr	Glu	Ser	Pro	Ser	Ser	Pro	Gln	Leu	Lys	Gly	Met	Trp	Thr	Ile	Asn
	50					55				60					
Ala	Ile	Gly	Arg	Leu	Gly	Asn	Gln	Met	Gly	Glu	Tyr	Ala	Thr	Leu	Tyr
	65				70				75					80	
Ala	Leu	Ala	Arg	Met	Asn	Gly	Arg	Pro	Ala	Phe	Ile	Pro	Pro	Glu	Met
				85				90						95	
His	Ser	Thr	Leu	Ala	Pro	Ile	Phe	Arg	Ile	Thr	Leu	Pro	Val	Leu	His

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100 105 110
 Ala Ser Thr Ala Arg Arg Ile Pro Trp Gln Asn Tyr His Leu Asn Asp
 115 120 125
 Trp Met Glu Glu Arg Tyr Arg His Ile Pro Gly Glu Tyr Val Arg Leu
 130 135 140
 Thr Gly Tyr Pro Cys Ser Trp Thr Phe Tyr His His Leu Arg Thr Glu
 145 150 155 160
 Ile Leu Arg Glu Phe Thr Leu His Asn His Val Arg Glu Glu Ala Gln
 165 170 175
 Asp Phe Leu Arg Gly Leu Arg Val Asn Gly Ser Arg Pro Ser Thr Tyr
 180 185 190
 Val Gly Val His Val Arg Arg Gly Asp Tyr Val His Val Met Pro Asn
 195 200 205
 Val Trp Lys Gly Val Val Ala Asp Arg Arg Tyr Leu Glu Gln Ala Leu
 210 215 220
 Asp Trp Phe Arg Ala Arg Tyr Arg Ser Pro Val Phe Val Val Ser Ser
 225 230 235 240
 Asn Gly Met Ala Trp Cys Arg Glu Asn Ile Asn Ala Ser Arg Gly Asp
 245 250 255
 Val Val Phe Ala Gly Asn Gly Ile Glu Gly Ser Pro Ala Lys Asp Phe
 260 265 270
 Ala Leu Leu Thr Gln Cys Asn His Thr Val Met Thr Ile Gly Thr Phe
 275 280 285
 Gly Ile Trp Ala Ala Tyr Leu Ala Gly Gly Glu Thr Ile Tyr Leu Ala
 290 295 300
 Asn Tyr Thr Leu Pro Asp Ser Pro Phe Leu Lys Leu Phe Lys Pro Glu
 305 310 315 320
 Ala Ala Phe Leu Pro Glu Trp Ile Gly Ile Glu Ala Asp Leu Ser Pro
 325 330 335
 Leu Leu Lys His
 340

<210> 3

<211> 1098

<212> DNA

<213> Sus Domesticus

<220>

<221> CDS

<222> (1) .. (1098)

<400> 3

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 Met Trp Val Pro Ser Arg Arg His Leu Cys Leu Thr Phe Leu Leu Val
 1 5 10 15

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tgt gtt tta gca gca att ttc ttc ctg aac gtc tat caa gac ctc ttt	96
Cys Val Leu Ala Ala Ile Phe Phe Leu Asn Val Tyr Gln Asp Leu Phe	
20 25 30	
tac agt ggc tta gac ctg ctg gcc ctg tgt cca gac cat aac gtg gta	144
Tyr Ser Gly Leu Asp Leu Leu Ala Leu Cys Pro Asp His Asn Val Val	
35 40 45	
tca tct ccc gtg gcc ata ttc tgc ctg gcg ggc acg ccg gta cac ccc	192
Ser Ser Pro Val Ala Ile Phe Cys Leu Ala Gly Thr Pro Val His Pro	
50 55 60	
aac gcc tcc gat tcc tgt ccc aag cat cct gcc tcc ttt tcc ggg acc	240
Asn Ala Ser Asp Ser Cys Pro Lys His Pro Ala Ser Phe Ser Gly Thr	
65 70 75 80	
tgg act att tac ccg gat ggc cgg ttt ggg aac cag atg gga cag tat	288
Trp Thr Ile Tyr Pro Asp Gly Arg Phe Gly Asn Gln Met Gly Gln Tyr	
85 90 95	
gcc acg ctg ctg gcc ctg gcg cag ctc aac ggc cgc cag gcc ttc atc	336
Ala Thr Leu Leu Ala Leu Ala Gln Leu Asn Gly Arg Gln Ala Phe Ile	
100 105 110	
cag cct gcc atg cac gcc gtc ctg gcc ccc gtg ttc cgc atc acg ctg	384
Gln Pro Ala Met His Ala Val Leu Ala Pro Val Phe Arg Ile Thr Leu	
115 120 125	
cct gtc ctg gcg ccc gag gta gac agg cac gct cct tgg cgg gag ctg	432
Pro Val Leu Ala Pro Glu Val Asp Arg His Ala Pro Trp Arg Glu Leu	
130 135 140	
gag ctt cac gac tgg atg tcc gag gat tat gcc cac tta aag gag ccc	480
Glu Leu His Asp Trp Met Ser Glu Asp Tyr Ala His Leu Lys Glu Pro	
145 150 155 160	
tgg ctg aag ctc acc ggc ttc ccc tgc tcc tgg acc ttc ttc cac cac	528
Trp Leu Lys Leu Thr Gly Phe Pro Cys Ser Trp Thr Phe Phe His His	
165 170 175	
ctc cgg gag cag atc cgc agc gag ttc acc ctg cac gac cac ctt cgg	576
Leu Arg Glu Gln Ile Arg Ser Glu Phe Thr Leu His Asp His Leu Arg	
180 185 190	
caa gag gcc cag ggg gta ctg agt cag ttc cgt cta ccc cgc aca ggg	624
Gln Glu Ala Gln Gly Val Leu Ser Gln Phe Arg Leu Pro Arg Thr Gly	
195 200 205	

gac cgc ccc agc acc ttc gtg ggg gtc cac gtg cgc cgc ggg gac tat	672
Asp Arg Pro Ser Thr Phe Val Gly Val His Val Arg Arg Gly Asp Tyr	
210 215 220	
ctg cgt gtg atg ccc aag cgc tgg aag ggg gtg gtg ggt gac ggc gct	720
Leu Arg Val Met Pro Lys Arg Trp Lys Gly Val Val Gly Asp Gly Ala	
225 230 235 240	
tac ctc cag cag gct atg gac tgg ttc cgg gcc cga tac gaa gcc ccc	768
Tyr Leu Gln Gln Ala Met Asp Trp Phe Arg Ala Arg Tyr Glu Ala Pro	
245 250 255	
gtc ttt gtg gtc acc agc aac ggc atg gag tgg tgc cgg aag aac atc	816
Val Phe Val Val Thr Ser Asn Gly Met Glu Trp Cys Arg Lys Asn Ile	
260 265 270	
gac acc tcc cgg ggg gac gtg atc ttt gct ggc gat ggg cgg gag gcc	864
Asp Thr Ser Arg Gly Asp Val Ile Phe Ala Gly Asp Gly Arg Glu Ala	
275 280 285	
gcg ccc gcc agg gac ttt gcg ctg ctg gtg cag tgc aac cac acc atc	912
Ala Pro Ala Arg Asp Phe Ala Leu Leu Val Gln Cys Asn His Thr Ile	
290 295 300	
atg acc att ggc acc ttc ggc ttc tgg gcc gcc tac ctg gct ggt gga	960
Met Thr Ile Gly Thr Phe Gly Phe Trp Ala Ala Tyr Leu Ala Gly Gly	
305 310 315 320	
gat acc atc tac ttg gct aac ttc acc ctg ccc act tcc agc ttc ctg	1008
Asp Thr Ile Tyr Leu Ala Asn Phe Thr Leu Pro Thr Ser Ser Phe Leu	
325 330 335	
aag atc ttt aaa ccc gag gct gcc ttc ctg ccc gag tgg gtg ggc att	1056
Lys Ile Phe Lys Pro Glu Ala Ala Phe Leu Pro Glu Trp Val Gly Ile	
340 345 350	
aat gca gac ttg tct cca ctc cag atg ttg gct ggg cct tga	1098
Asn Ala Asp Leu Ser Pro Leu Gln Met Leu Ala Gly Pro	
355 360 365	

<210> 4

<211> 365

<212> PRT

<213> Sus Domesticus

<400> 4

Met Trp Val Pro Ser Arg Arg His Leu Cys Leu Thr Phe Leu Leu Val

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20	25	30	
Tyr Ser Gly Leu Asp Leu Leu Ala Leu Cys Pro Asp His Asn Val Val			
35	40	45	
Ser Ser Pro Val Ala Ile Phe Cys Leu Ala Gly Thr Pro Val His Pro			
50	55	60	
Asn Ala Ser Asp Ser Cys Pro Lys His Pro Ala Ser Phe Ser Gly Thr			
65	70	75	80
Trp Thr Ile Tyr Pro Asp Gly Arg Phe Gly Asn Gln Met Gly Gln Tyr			
85	90	95	
Ala Thr Leu Leu Ala Leu Ala Gln Leu Asn Gly Arg Gln Ala Phe Ile			
100	105	110	
Gln Pro Ala Met His Ala Val Leu Ala Pro Val Phe Arg Ile Thr Leu			
115	120	125	
Pro Val Leu Ala Pro Glu Val Asp Arg His Ala Pro Trp Arg Glu Leu			
130	135	140	
Glu Leu His Asp Trp Met Ser Glu Asp Tyr Ala His Leu Lys Glu Pro			
145	150	155	160
Trp Leu Lys Leu Thr Gly Phe Pro Cys Ser Trp Thr Phe Phe His His			
165	170	175	
Leu Arg Glu Gln Ile Arg Ser Glu Phe Thr Leu His Asp His Leu Arg			
180	185	190	
Gln Glu Ala Gln Gly Val Leu Ser Gln Phe Arg Leu Pro Arg Thr Gly			
195	200	205	
Asp Arg Pro Ser Thr Phe Val Gly Val His Val Arg Arg Gly Asp Tyr			
210	215	220	
Leu Arg Val Met Pro Lys Arg Trp Lys Gly Val Val Gly Asp Gly Ala			
225	230	235	240
Tyr Leu Gln Gln Ala Met Asp Trp Phe Arg Ala Arg Tyr Glu Ala Pro			
245	250	255	
Val Phe Val Val Thr Ser Asn Gly Met Glu Trp Cys Arg Lys Asn Ile			
260	265	270	
Asp Thr Ser Arg Gly Asp Val Ile Phe Ala Gly Asp Gly Arg Glu Ala			
275	280	285	
Ala Pro Ala Arg Asp Phe Ala Leu Leu Val Gln Cys Asn His Thr Ile			
290	295	300	
Met Thr Ile Gly Thr Phe Gly Phe Trp Ala Ala Tyr Leu Ala Gly Gly			
305	310	315	320
Asp Thr Ile Tyr Leu Ala Asn Phe Thr Leu Pro Thr Ser Ser Phe Leu			
325	330	335	
Lys Ile Phe Lys Pro Glu Ala Ala Phe Leu Pro Glu Trp Val Gly Ile			
340	345	350	
Asn Ala Asp Leu Ser Pro Leu Gln Met Leu Ala Gly Pro			
355	360	365	

Handwritten initials

Handwritten letter I

<210> 5
<211> 54
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Chimeric,
Homo Sapiens and Sus Domesticus

<400> 5
gcggatccat gtggctccgg agccatcgtc aggtggttct gtcaatgctg cttg 54

<210> 6
<211> 39
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Chimeric,
Homo Sapiens and Sus Domesticus

<400> 6
gctctagagc gtcagatggt atttctaacc aaattatac 39

<210> 7
<211> 45
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Chimeric,
Homo Sapiens and Sus Domesticus

<400> 7
gcggatccat gaatgtcaaa ggaagactct gcctggcctt cctgc 45

<210> 8
<211> 35
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Chimeric,
Homo Sapiens and Sus Domesticus

<400> 8
gctctagagc ctcaaggctt agccaatgtc cagag

35

<210> 9
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Chimeric,
Homo Sapiens and Sus Domesticus

<400> 9
ttcgcgaatg aatgtcaaag gaagactctg

30

<210> 10
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Chimeric,
Homo Sapiens and Sus Domesticus

<400> 10
ggcggccgct cagatgttat ttctaaccaa at

32

<210> 11
<211> 6
<212> PRT
<213> Sus scrofa

<400> 11
Met Asn Val Lys Gly Arg
1 5

<210> 12
<211> 6
<212> PRT
<213> Mus musculus

<400> 12
Met Asn Val Lys Gly Lys
1 5

<210> 13
<211> 6
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism: Bovine

<400> 13
Met Val Val Lys Gly Lys
1 5

<210> 14
<211> 6
<212> PRT
<213> Sus scrofa

<400> 14
Met Asn Val Lys Gly Arg
1 5

<210> 15
<211> 4
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism: Motif

<400> 15
Lys Asp Glu Leu
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<210> 16
<211> 4
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism: Motif

<220>
<221> UNSURE

<222> (3) .. (4)

<223> Xaa is any amino acid

ILY
Control
<400> 16

Lys Lys Xaa Xaa

1
